

ABSTRACT

Many military land vehicles are not designed to withstand extreme forces concomitant exploding mines. A vehicle's capacity to protect its occupants is inventively enhanced by structurally augmenting the vehicle, in lower structural portions closely related to the vehicle's cabin, with both elastomeric and rigid (non-elastomeric) materials. An elastomeric layer and a rigid layer (typically embodied as a metal or composite sheet or plate) are added to the vehicle in each of seven locations, viz., the four wheel wells (left-front, right-front, left-rear, right-rear), the two floorboards (left and right), and the intervening underside area. At each wheel well and floorboard location, the elastomer is sandwiched between the vehicle's existing rigid structure and the rigid member so as to form a tri-layer material system. At the intervening underside location, an elastomer-coated rigid member is attached with the elastomer face-down. The seven material systems are energy-dissipative and impact-deflective both locally and globally.